EXHIBIT

_A_

tabbies®

》《 | Dansk Data Elektronik A/S   Supermax E-CAD | 8.2

Buried/Blind vias

Details:

The Supermax E-CAD Reference Manual uses the following definitions of via types:

normal via: a via going through all the layers of the PCB.
blind via: a via having connection to the surface of the PCB, but not going through all layers.
buried via: going through one or more layers but without connection to the surface of the PCB.

The system parameter burymap specifies which type of buried vias may be used while BuryMenu and PrefBury defines how and the order they are used.
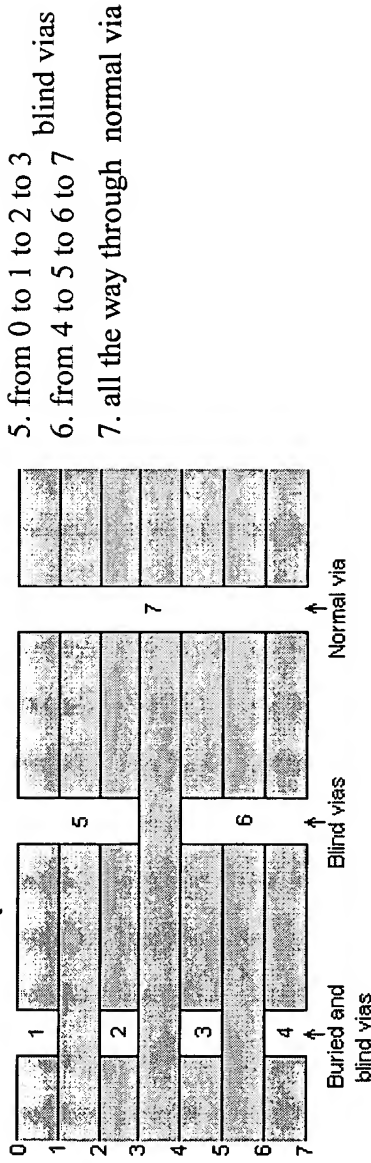
```
sysparm name burymap value 'map'
```

The 'map' is a number of layers separated by semicolon (';') or slash ('/'). For each type of via the layers are listed with semicolon in between. Each bury definition is separated by the slash ('/') character. An example:

```
'map'  /0;1/2;3/4;5/6;7/0;1;2;3/4;5;6;7/255
```
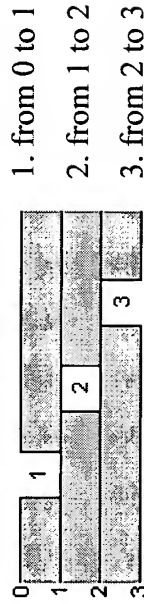
Legal vias:

1. from 0 to 1
2. from 2 to 3
3. from 4 to 5   buried and
4. from 6 to 7   blind vias

5. from 0 to 1 to 2 to 3
6. from 4 to 5 to 6 to 7   blind vias
7. all the way through normal via

Buried and   Blind vias   Normal via
blind vias

When making a 4-layer thick film the following <u>burymap</u> may be used:

`'map' /0;1/1;2/2;3`

Legal vias:

1. from 0 to 1

2. from 1 to 2

3. from 2 to 3

Note! In this example it is not legal to make a via all the way through from layer 0 to 3.

The burymap is erased by setting the <u>burymap</u> to '' (two single-quotes).

The <u>burymap</u> sysparm controls the relation between vias and the corresponding layer pairs and the via between layers to be specified. A burymap can contain the name of a via used per layer combination and may hence look as follows:

`/0;2=v0@2/2;3=v2@3/6;7=v6@7/7;1=v7@1/0;2;3;4;5;6;7;1=v255`

The burymap may be varied during layout as the burymap is placed in each via. When saving a job the burymap is kept for information only and the old burymap is reinstalled when <u>getpcb</u> is used. Only when introducing and erasing a buried via the burymap is used.

Notes:

When placing a via using the routers a hidden via is introduced according to the burymap. When placing vias with setttrack or movecomn (twice the same position) the layer used for the two positions are of importance. The layer may be changed between the 'from' point and the 'to' point using the following command:

```
\n setlay lay <layer number/name>
```

If a buried via is legal in between the two layers it is introduced; otherwise a global via (if legal) is made.

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